



Goddard Procedural Requirements (GPR)

DIRECTIVE NO. GPR 1840.1C

APPROVED BY Signature:

Original Signed By

EFFECTIVE DATE: August 24, 2017

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EXPIRATION DATE: August 24, 2022

TITLE: Director, Safety and Mission Assurance

COMPLIANCE IS MANDATORY

Responsible Office: Code 360 / Safety Division

Title: Asbestos Management Program

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P.1 PURPOSE

This directive defines the requirements and procedures of the Asbestos Management Program at the Goddard Space Flight Center (GSFC) to:

- a. Protect employees, contractors, and visitors from exposure to asbestos arising during building renovation, construction, operations and maintenance, and other activities; and
- b. Ensure compliance with Federal and state regulations, in addition to NASA and GSFC requirements related to asbestos-containing materials (ACM).

P.2 APPLICABILITY

- a. This directive applies to all GSFC civil service employees. It applies to all contractors, tenant organizations, grantees, clubs, and other organizations operating under the auspices of GSFC or GSFC property, to the extent reflected in relevant contracts, grants, and agreements.
- b. In this directive, all document citations are assumed to be the latest version unless otherwise noted.
- c. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term “shall.” The terms “may” or “can” denote discretionary privilege or permission; “should” denotes a good practice and is recommended but not required; “will” denotes expected outcome; and “are/is” denotes descriptive material.

P.3 AUTHORITIES

- a. Executive Order 12196, Occupational Safety and Health Programs for Federal Employees
- b. Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations (CFR) Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters
- c. NASA Policy Directive (NPD) 1800.2, NASA Occupational Health Program
- d. NASA Procedural Requirements (NPR) 1800.1, NASA Occupational Health Program Procedure

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. OSHA 29 CFR Part 1910.134 Respiratory Protection
- b. OSHA 29 CFR Part 1910.1001 Asbestos
- c. OSHA 29 CFR Part 1926.1101 Asbestos
- d. Environmental Protection Agency (EPA) Title 40 CFR Part 61, Subpart M National Emission Standard for Asbestos (NESHAP)
- e. EPA 40 CFR Part 763, Subpart E Asbestos-Containing Materials in Schools
- f. EPA 40 CFR Part 763, Subpart G Asbestos Worker Protection
- g. Department of Transportation (DOT) Title 49 CFR Part 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
- h. DOT 49 CFR Part 173 Shippers – General Requirements for Shipments and Packagings
- i. DOT 49 CFR Part 178 Specifications for Packagings

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- j. Code of Maryland Regulations (COMAR) Title 26 Department of the Environment, Subtitle 11 Air Quality, Chapter 21 Control of Asbestos
- k. COMAR Title 26 Department of the Environment, Subtitle 11 Air Quality, Chapter 23 Asbestos Accreditation of Individuals and Approval of Training Courses
- l. Commonwealth of Virginia Administrative Code (VAC) Title 16 Department of Labor and Industry, 16 VAC 25-20-10 Regulation Concerning Licensed Asbestos Contractor Notification, Asbestos Project Permits and Permit Fees
- m. VAC Title 16 Department of Labor and Industry, 16 VAC 25-30-10 Regulations for Asbestos Emissions Standards for Demolition and Renovation Construction Activities and the Disposal of Asbestos-Containing Construction Wastes
- n. VAC Title 54 Department of Professional and Occupational Regulation, 54.1, Chapter 5 Asbestos, Lead, and Home Inspection Contractors and Workers
- o. GSFC Form 17-26, Exit Clearance Record
- p. GSFC Form 17-26W, Exit Clearance Record/Wallops
- q. GSFC Form 23-59, Initiator's Acquisition Checklist
- r. GSFC Form 23-73, Facilities Environmental and Safety Checklist For New Construction, Modifications, Demolition, and Maintenance of Facilities
- s. GSFC Form 23-80, Asbestos Abatement Plan Submittal Form
- t. OSHA Enforcement and Compliance Directive (CPL) 02-02-063, Inspection Procedures for Occupational Exposure to Asbestos Final Rule 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001
- u. Naval Facilities Engineering Command (NAVFAC) Unified Facilities Guide Specifications (UFGS) Section 02 82 16.00 20 Engineering Control of Asbestos Containing Materials

P.5 CANCELLATION

GPR 1840.1B, Asbestos Management Program at GSFC.

P.6 SAFETY

All personnel who perform surveys in conjunction with this document shall comply with safety and health requirements defined in this GPR, and all other applicable regulations (including, but not limited to, 29 CFR 1910.1001, 29 CFR 1926.1101, and 40 CFR 763).

P.7 TRAINING

Personnel performing asbestos work shall receive initial and annual training from their respective organizations within 60 days of initial employment.

- a. Personnel such as maintenance technicians; utilities mechanics; electricians; heating, ventilation, and air conditioning (HVAC) technicians; plumbers; custodians; building managers and project managers who perform or direct Class IV asbestos work shall complete 2-Hour Asbestos Awareness training in accordance with the criteria in 40 CFR 763.92;
- b. Maintenance, repair, and custodial personnel who conduct activities that will result in the disturbance of asbestos-containing building materials (ACBM); or who remove, encapsulate,

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enclose, repair or remove small amounts (limited to a single glove bag operation) of ACM, described in 29 CFR 1926.1101 as Class III asbestos work, shall complete 2-Hour Asbestos Awareness Training and 14 hours of additional Operations and Maintenance (O&M) training as specified in 40 CFR 763.92;

- c. Training described in paragraphs d through i of this section shall be provided by instructors approved by the EPA, in accordance with 40 CFR 763 Appendix C to Subpart E (Asbestos Model Accreditation Plan (MAP)) and the appropriate State code VAC 54-1-5 or COMAR 26.11.23;
- d. Personnel who remove, encapsulate, enclose, repair or remove amounts of friable ACM that are in excess of a glove bag, including work described in 40 CFR 763, Subpart E, Appendix C, paragraph I. B; and work per 29 CFR 1926.1101 considered Class I asbestos work and Class II asbestos work that require the use of critical barriers and/or negative pressure enclosures, shall complete 4 days of Asbestos Worker training, and 1 day of annual refresher training thereafter, in accordance with 40 CFR 763 Appendix C to Subpart E, 29 CFR 1926.1101, 29 CFR 1910.134, and COMAR 26.11.23 or VAC 25-30-10;
- e. Asbestos project contractors/supervisors who supervise asbestos workers performing work in paragraph d. above shall complete 5 days of Supervisor/Contractor training, and 1 day of refresher annual training thereafter, in accordance with 40 CFR 763 Appendix C to Subpart E, 29 CFR 1926.1101, 29 CFR 1910.134, and COMAR 26.11.23 or VAC 25-30-10;
- f. Personnel who inspect for ACM, e.g., Industrial Hygiene (IH) Asbestos Program Manager, shall complete 3 days of Building Inspector training, and 4 hours of annual refresher training thereafter, and obtain appropriate license, in accordance with COMAR 26.11.23 or VAC 25-30-10, and 40 CFR 763 Appendix C to Subpart E;
- g. Personnel who prepare, approve, and oversee building asbestos management plans, e.g., Facilities Asbestos Coordinators (FAC), shall complete 5 days of Management Planner training, including 3 days of Building Inspector training; and 8 hours of annual refresher training thereafter (including the 4 hours of Building Inspector refresher training), and obtain appropriate license, in accordance with COMAR 26.11.23 or VAC 25-30-10, and 40 CFR 763 Appendix C to Subpart E;
- h. Personnel who prepare and approve asbestos abatement plans and statements of work, and design asbestos or O&M projects that disturb friable ACM, or response actions for major fiber release episodes, e.g., Asbestos Abatement Company Managers and IH Asbestos Program Manager shall complete 3 days of Project Designer training, and 1 day of annual refresher training thereafter, and obtain appropriate license, in accordance with COMAR 26.11.23 or VAC 25-30-10, and 40 CFR 763 Appendix C to Subpart E;
- i. Asbestos project monitors at WFF, who observe abatement activities performed by contractors and who may also perform final clearance air monitoring, e.g., independent third party industrial hygienist, shall complete 5 days of Project Monitor training in accordance with VAC 25-30-10 and 40 CFR 763 Appendix C to Subpart E;
- j. Personnel who perform Class II work with asbestos-containing roofing materials, flooring materials, siding materials, ceiling tiles, or Transite™ panels, not covered under paragraph d. above, shall complete 8 hours of training specified in 29 CFR 1926.1101 (k)(9) and (g);
- k. For all other Class II work not covered above, training shall be provided which includes at a minimum all the elements in 29 CFR 1910.1101 (k)(9)(viii), the specific work practices and engineering controls set forth in paragraph (g) which specifically relate to the category of material

being removed, and “hands-on” training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses;

- l. Training for employees who are likely to be exposed in excess of the OSHA permissible exposure limit (PEL), and who are not otherwise required to be trained under any paragraphs above, shall meet the requirements of 29 CFR 1910.1101 (k)(9)(viii);
- m. Personnel who disassemble, repair, and assemble asbestos-containing brakes and clutches shall receive training in accordance with the requirements of 29 CFR 1910.1001;
- n. Personnel who may be exposed to asbestos through activities associated with non-facilities ACM shall receive training in accordance with the requirements of 29 CFR 1910.1001 and should be knowledgeable of substance technical information in 29 CFR 1910.1001 Appendix G;
- o. Facilities Operations Managers (FOMs) are encouraged to attend 2-Hour Asbestos Awareness training.
- p. Personnel removing Vinyl Asbestos Floor Tile (VAT) using Compliant Work Practices as described in CPL 02-02-063 shall complete 8 hours of training in accordance with the OSHA Settlement Agreement; and
- q. Competent Persons overseeing the removal of VAT using Compliant Work Practices as described in CPL 02-02-063 shall complete 12 hours of training in accordance with the OSHA Settlement Agreement.

P.8 RECORDS

Record Title	Record Custodian	Retention
Objective Data and Air Monitoring Results	Safety Division, Industrial Hygiene Office (IHO) or WFF FAC	NRRS 8/23.5* Cut off annually. Destroy with concurrence of center or NASA Counsel's Office 75 years after cutoff or when no longer needed, whichever is later.
Bulk Sampling Results	Safety Division, IHO or WFF FAC	NRRS 8/23.5*
ACBM Location, Condition, and Management Records (as maintained in ARCHIBUS or GIS)	FACs	NRRS 8/23.5*
Asbestos Survey Historical Records	Safety Division, IHO	NRRS 8/23.5*
Asbestos Abatement Actions Report	Safety Division, IHO	NRRS 8/23.5*
ACBM / Presumed Asbestos-Containing Materials (PACM) 3-Year Assessment and Surveillance Reports	Safety Division, IHO or WFF FAC	NRRS 8/23.5*
O&M Activity Involving ACM Report	FACs	NRRS 8/23.5*

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Asbestos Abatement Plans and Removal Reports	Safety Division, IHO or WFF FAC	NRRS 8/23.5*
Fiber Release Episode Monitoring Reports	Safety Division, IHO or WFF FAC	NRRS 8/23.5*
Asbestos waste shipment records	Safety Division, IHO or WFF FAC	NRRS 8/23.5*
Asbestos project work documents	Facilities Management Division (FMD)	NRRS 8/23.5*
Civil Service Employee Training Records	Office of Human Capital Management	Dispose 3 years from date of training. [Authority: 40 CFR 763.94(a)]
Civil Service Employee Medical Surveillance Records	Medical and Environmental Management Division (MEMD), Health Unit (Greenbelt or WFF)	NRRS 8/41* Retire with individual employee health case files as listed in Schedule 1, Employee Health Records, of NRRS 1441.1.
Memorandum from FAC to MEMD of the annual predictions of quantities of regulated ACM to be removed	FACs	Dispose 3 years from date of report. [Authority: 40 CFR 763.94(a)]
Letter to Maryland Department of Environment (MDE) of the annual predictions of quantities of regulated ACM to be removed	MEMD	*NRRS 8/23A5 Cut off Annually. Destroy 3 years after cutoff or when no longer needed, whichever is longer

*NRRS – NASA Records Retention Schedules ([NRRS 1441.1](#))

P.9 MEASUREMENT/VERIFICATION

The Center Asbestos Coordinator (CAC) shall maintain data on the performance of the Asbestos Management Program. The data will be compiled, reviewed, and reported at least annually to the Safety Division Chief. The data should include:

- Number, type, and status of open audit findings related to asbestos regulations;
- Number of personnel who have received asbestos awareness training;
- Number of bulk samples analyzed for asbestos (Greenbelt only);
- Average response time from survey request to evaluation (Greenbelt only);
- Average response time from on-site evaluation or sample collection to written report (Greenbelt only);
- Percentage of asbestos abatement submittals that are either approved or rejected within 3 working days (Greenbelt only); and
- Percentage of customer satisfaction evaluations for training classes presented ranking above average to excellent in relation to total number of evaluations.

PROCEDURES

1.0 ROLES AND RESPONSIBILITIES

1.1 The Center Director ensures that:

- a. A safe and healthful workplace is provided for all GSFC personnel; and
- b. All recognized hazards are controlled to the greatest possible extent.

1.2 Directors of Code 200, 500, and other codes as applicable shall:

- a. Mandate that Directorate operations-related asbestos projects and concerns are handled through the Directorate Asbestos Coordinator (DAC; see section 1.7);
- b. Ensure that procedures are available for reviewing building and equipment designs and modifications which may result in disturbance or disposal of ACM or PACM;
- c. Make available a point of contact from the Directorate to be the DAC; and
- d. Ensure that an O&M Plan is developed and implemented for their operations and forwarded to the Safety Division IH function and FAC for review and approval.

1.3 Director of the Management Operations Directorate (MOD) shall:

- a. Monitor the execution and cost of the Center Asbestos Management Program through routine meetings as required with representatives of the FMD and the Safety Division; and
- b. Advocate for funds to execute the Asbestos Management Program.

1.4 The Center Asbestos Coordinator (CAC) shall:

- a. Act as the primary GSFC contact to regulatory agencies, NASA, and internal and external auditors regarding asbestos matters;
- b. Provide overall leadership for the Asbestos Management Program;
- c. Periodically evaluate the Asbestos Management Program for compliance with asbestos-related requirements and procedures;
- d. Develop and implement asbestos management requirements and procedures at GSFC;
- e. Assist in determining the purpose, scope, and conditions of satisfaction of a Center-wide asbestos survey to identify and prioritize the risk of ACBM and PACM;

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- f. Direct the surveillance of the condition of high priority ACBM and PACM on a 3-year basis;
- g. Ensure that the procedures described in sections 4.4 Clearance Air Monitoring and 4.5 Response Actions are followed in the event of a minor or major fiber release episode;
- h. Review O&M Plans with the Safety Division IHO; and
- i. Act as the chairperson of the Asbestos Working Group (AWG) and maintain its charter.

1.5 The Safety Division:

1.5.1 The Safety Division Chief shall appoint a CAC (see section 1.4).

1.5.2 The Safety Division IHO shall:

- a. Review and evaluate changes to asbestos regulations at the Center;
- b. Maintain asbestos management documentation, survey reports, sample analyses reports, abatement approval reports, and waste shipment records as described in P.9 Records that pertain to Greenbelt;
- c. Assign an Asbestos Program Manager at Greenbelt to perform the following at Greenbelt:
 - (1) Act as the primary contact to the FAC and FMD Project Managers for asbestos-related safety, health, and environmental issues and asbestos abatement project regulatory compliance;
 - (2) Serve as the interface between Project Managers and the CAC;
 - (3) Provide day-to-day management of the Asbestos Management Program;
 - (4) Assist the CAC to ensure that asbestos-related activities are carried out in accordance with all applicable Federal, state, NASA and GSFC asbestos requirements;
 - (5) Collect and analyze samples of suspect ACM when the material content is not known, and inform the FAC, FMD Project Managers, and CAC of the results;
 - (6) Provide information regarding ACM, surveys, monitoring results, and response actions to FOMs, building occupants, and other GSFC employees;
 - (7) Review and approve asbestos abatement plans, submittals, licenses and permits of abatement personnel, proposed landfills, and waste transporters prior to abatement;
 - (8) Check approximately 5% of asbestos abatement projects to observe whether project specifications are being met;
 - (9) If determined to be necessary, perform additional monitoring during asbestos abatement projects or other work involving potential exposure to asbestos;
 - (10) Coordinate response action and perform perimeter air monitoring when there is a breach in containment during an asbestos abatement project or following a fiber release episode;
 - (11) Select American Industrial Hygiene Association (AIHA) or National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratories to analyze asbestos bulk/air samples;

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(12) Review and approve asbestos abatement project post-abatement reports, waste shipment records, and clearance air monitoring results to ensure compliance with EPA 40 CFR Part 763, Subpt. E referenced by OSHA in 29 CFR 1910.1001 and 29 CFR 1926.1101;

(13) Review and approve O&M Plans developed by Directorates and organizations at GSFC;

(14) Ensure the posting of signs and warning labels, in accordance with 40 CFR 763.95, that identify ACBM or PACM, its location, and appropriate work practices; and

(15) Oversee the surveillance of high priority ACBM and PACM, as identified in past Center-wide asbestos surveys, at least once every 3 years.

(16) Review, approve and forward to the Region 3 EPA Asbestos NESHAP Coordinator within 3 days, Environmental Protection Agency 45 day late waste shipment Notification documentations (Exception Report) received from project managers. Exception reports must include a copy of the waste shipment record for which a confirmation of delivery was not received, and a cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts in accordance with 40 CFR 61.150(d)(3) and (4).

1.6 The WFF IHO shall:

- a. Assist and provide guidance to the WFF FAC concerning safety and health issues related to asbestos;
- b. Review and approve asbestos abatement plans, submittals, licenses and permits of abatement personnel;
- c. Review and approve asbestos abatement project post-abatement reports and clearance air monitoring results to ensure compliance with EPA and OSHA;
- d. Determine the need for additional monitoring during asbestos abatement projects or other work involving potential exposure to asbestos;
- e. Coordinate response action and perform perimeter air monitoring as necessary when there is a breach in containment during an asbestos abatement project or following a fiber release episode;
- f. Assist the FAC in posting signs and warning labels, in accordance with 40 CFR 763.95, that identify ACBM or PACM, its location, and appropriate work practices; and
- g. Be a member of the WFF Asbestos Group and AWG.

1.7 Directorate Asbestos Coordinators (DACs) shall:

- a. Act as the primary contacts for asbestos-related projects managed by their Directorate;
- b. Ensure that all asbestos-related work performed by their directorate is conducted in accordance with this GPR;

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- c. Provide information about changes to ACM to the appropriate FAC so that the computer-aided facilities management system (i.e., ARCHIBUS® or GIS) can be updated; and
- d. Be a member of the AWG.

1.8 The Asbestos Working Group (AWG) shall convene periodically as directorate representatives to mutually develop and improve upon best practices and procedures, resolve audit findings, and raise awareness of asbestos related issues at GSFC as described in the AWG Charter, for the sake of minimizing exposure to asbestos, creating efficient processes, and resolving concerns of personnel.

1.9 Facility Operation Managers (FOMs) shall:

- a. Inform the IHO and DAC when there are changes to their building that could affect ACM/PACM:
- b. Notify the FAC and, if at Greenbelt, the IHO and DAC of any damaged PACM or ACM in their building;
- c. Coordinate asbestos abatement projects with the FAC, DAC and, if at Greenbelt, FMD Project Managers;
- d. Coordinate with FMD Project Managers (at Greenbelt), DAC or the FAC (at WFF) the notification of all building occupants at least 3 days prior to commencing an asbestos abatement project;
- e. Coordinate the securing of areas of buildings and shutting off the HVAC system if an asbestos release episode is suspected in the building;
- f. In coordination with the CAC (at Greenbelt), DAC or the FAC and Industrial Hygienist (at WFF), ensure that the procedures described in sections 4.4 Clearance Air Monitoring and 4.5 Response Actions are followed in the event of a minor or major fiber release episode; and
- g. Ensure that surveillance is conducted by the FAC in each building or facility that contains high priority ACM or PACM at least every 3 years.

1.10 Facilities Management Division (FMD)

1.10.1 The FMD Division Chief shall:

- a. Assign FACs and alternates for facilities that are the responsibility of the MOD at Greenbelt and WFF;
- b. Ensure that FMD personnel who perform Class I-IV asbestos work receive the appropriate training as described in P.8; and

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- c. Ensure that the FACs for Greenbelt and WFF maintain their respective computer-aided facilities management system (i.e., ARCHIBUS®, GIS).

1.10.2 Facilities Asbestos Coordinators (FACs)

1.10.2.1 All FACs shall:

- a. Coordinate and submit the statement of work, with the CAC, for asbestos building material surveys to identify ACBM and PACM at the Center;
- b. Maintain and update the computer-aided facilities management system (i.e., ARCHIBUS®, GIS) so that the databases reflect ACBM and PACM in the buildings and their condition;
- c. Ensure that asbestos abatement contractor staff includes state-licensed Asbestos Supervisors;
- d. Ensure that signs or labels are posted on all intact TSI and friable ACM located in areas accessible to employees, contractors, or the general public;
- e. Develop a complementary asbestos management plan, Procedures and Guidelines (PG) or Work Instruction (WI) approved by the IHO, which describes the management and approval of asbestos abatement projects, the computer-aided facilities management system (i.e., ARCHIBUS®, GIS), preventive measures and response actions to be taken, and O&M plans, in accordance with 40 CFR 763.93;
- f. Have accreditation as Management Planners in accordance with Section P.8 Training; and
- g. Be members of the AWG.
- h. Provide to MEMD the annual predictions of quantities of regulated ACM to be removed from each building or facility for the following calendar year, in accordance with 40 CFR 61.145, by December 1, and report any quantities greater than NESHAP thresholds to the MDE or Virginia Department of Labor and Industry (VDOLI)

1.10.2.2 The FAC at Greenbelt shall:

- a. Coordinate asbestos abatement projects with the FMD Project Managers, DACs, and the IHO; and
- b. Notify and provide information to the IHO concerning any asbestos projects and other activities that may disturb ACBM.

1.10.2.3 The FAC at WFF shall:

- a. Act as the primary contact for asbestos-related issues, project regulatory compliance, and survey and sampling results;

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- b. Coordinate asbestos abatement projects with Facilities Management Branch (FMB) Project Managers and consult the WFF IH as necessary;
- c. Serve as the interface between WFF and the CAC;
- d. Provide day-to-day management of the Asbestos Management Program;
- e. Assist the CAC to ensure that asbestos-related activities are carried out in accordance with all applicable federal, state, NASA and GSFC asbestos requirements;
- f. Review and approve asbestos abatement plans, submittals, licenses and permits of abatement personnel;
- g. Periodically check asbestos abatement projects to observe whether project specifications are being met;
- h. Review and approve asbestos abatement project post-abatement reports, waste shipment records, and clearance air monitoring results to ensure compliance with EPA and OSHA regulations;
- i. Notify FMB Project Managers and the WFF IH of sampling results, surveys, and other matters regarding ACM as necessary;
- j. Ensure the posting of signs and warning labels, in accordance with 40 CFR 763.95, that identify ACBM or PACM, its location, and appropriate work practices;
- k. Oversee the surveillance of high priority ACBM and PACM, as identified in past Center-wide asbestos surveys, at least once every 3 years;
- l. Direct the collection and analysis of samples of suspect ACM through FMB as necessary;
- m. Ensure that AIHA or NIST NVLAP accredited laboratories are used to analyze asbestos bulk/air samples;
- n. Coordinate the WFF Asbestos Group; and
- o. Maintain asbestos management documentation, survey reports, sample analyses reports, abatement approval reports, and waste shipment records as described in P.8 Records.

1.10.3 The FMD/Facility Management Branch (FMB) Operations & Maintenance Branch shall:

- a. Ensure that maintenance work is performed in accordance with O&M procedures, and that personnel do not enter regulated areas without proper training and personal protective equipment (PPE);

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- b. Include one on-site team (two or three personnel) designated as capable of performing Class III asbestos work, or be able to provide this capability from an off-site contractor within 4 hours in the event a quick turnaround is necessary;
- c. Receive the appropriate training (e.g., Class III or IV) according to their work activities, as described in paragraph P.8 Training; and
- d. Notify the IHO and FAC of any damaged ACM or PACM.
- e. Ensure that mechanical room entrances have warning and contact information signs and homogeneous areas have warning labels in accordance with section 6 (b and c).

1.10.4 The FMD/FMB Planning Office shall:

- a. Ensure that the presence, location, and quantity of ACM and PACM has been made known through consulting the computer-aided facilities management system (i.e., ARCHIBUS®, GIS) or through samples analyses, prior to the submittal of any new asbestos abatement project;
- b. Ensure that any short-term or temporary contractors who may come into contact with asbestos at GSFC are provided information regarding the locations of ACM and PACM; and
- c. Notify the Greenbelt IHO (at WFF the IHO and FAC) of any activities that may result in a NESHAP-size renovation.

1.10.5 FMD/FMB Project Managers shall:

- a. Determine the presence, location, and quantity of ACM and PACM prior to any building renovation, demolition, or O&M work,
- b. Ensure that asbestos-related work activities are conducted in accordance with Federal, state, NASA and GSFC requirements;
- c. Ensure that accurate drawings and relevant information depicting the locations that will be affected by any demolition, renovation, or maintenance activities are available for distribution to the asbestos abatement contractor;
- d. Ensure that the IHO (also, the DAC and FOM where appropriate) is notified at the design and planning stage of any construction, renovation, or O&M projects that may impact ACBM or PACM;
- e. Ensure that all construction specification documents that relate to asbestos specify the material, quantity, type, and location(s) of any ACM to be removed;
- f. Complete GSFC Form 23-73 Environmental Checklist, Facilities during the planning phase of facilities projects;

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- g. Ensure that the GSFC Asbestos Management Program is made known to bidders before award of projects;
- h. Ensure that notification is made, in coordination with the FOM, to all building occupants at least 3 days prior to commencing asbestos abatement work;
- i. Ensure that building occupants, other personnel, and prospective outside contractors who can reasonably be expected to work in or adjacent to areas containing ACBM or PACM are notified with signage indicating the ACBM or PACM;
- j. Ensure that contractors/subcontractors conducting asbestos-related work on GSFC property receive a copy of the GSFC Asbestos Management Program and sign a letter of receipt;
- k. Ensure that required notifications are provided to the EPA and state agencies as to the quantity of ACM to be removed during planned renovations and demolitions (a 10-day notice to the EPA is required for NESHAP-size projects);
- l. Ensure that the following documents from the abatement contractor/subcontractor are provided to the IHO (IHO and FAC at WFF) for review prior to the start of work:
 - (1) An asbestos abatement plan;
 - (2) A completed GSFC Form 23-80 (for Greenbelt projects);
 - (3) A copy of the contractor's/subcontractor's Asbestos Abatement Contractor's license issued by the appropriate State Licensing Board, the MDE or the Virginia Department of Professional and Occupational Regulation;
 - (4) A copy of the site-specific health and safety plan;
 - (5) A copy of the asbestos-abatement contractor's Hazard Communication and Respiratory Protection Programs;
 - (6) A copy of all asbestos abatement contractors' asbestos-related training certificates, asbestos-related state license, licensed physician medical evaluations, and respiratory fit-test certifications;
 - (7) The name of the asbestos waste transporter and a copy of its license; and
 - (8) The name of the waste disposal site and a copy of the landfill permit for regulated waste.
- m. Ensure that a competent person is assigned to all asbestos project work sites;
- n. Ensure that third party air monitoring results and manometer readings are posted daily in a designated area within the building;
- o. Ensure that a post abatement report including observations, proof of negative pressure (e.g., manometer readings), air monitoring results, and final clearance monitoring results, if applicable, are provided to the IHO within 10 days of the monitoring;

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- p. Ensure that waste shipment records for regulated ACM waste are obtained from the asbestos abatement contractor within 35 days of the date that the waste was accepted by the initial transporter, and forwarded to the IHO within 10 days of receipt;
 - (1) When waste shipment records signed by the owner or operator of the designated disposal site, is not received by the abatement contractor within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or owner or operator of the designated disposal site to determine the status of the waste shipment.
 - (2) If a copy of the waste shipment record, signed by the owner or operator of the designated waste disposal site, is not received within 40 days of the date the waste was accepted by the initial transporter, submit an exception report to the IHO that includes a copy of the waste shipment record for which a confirmation of delivery was not received, and a cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.
- q. Eliminate the installation of new ACM unless approved by the AWG.
- r. If procurement or use of ACM is planned, notify the IHO and indicate this in the Initiator's Acquisition Checklist GSFC Form 23-59.
- s. Notify the IHO if the Initiator's Acquisition Checklist GSFC Form 23-59 indicates plans to procure ACM;
- t. Eliminate the installation of new ACM unless approved by the AWG;
- u. Ensure that this GPR is referenced in contract specifications; and
- v. Ensure that asbestos abatement contractors are subject to this GPR by specification adherence to this GPR in contracts with construction, renovation and O&M contracts.

1.10.6 The Custodial Staff Contracting Officers' Representative (COR) shall:

- a. Ensure that all custodians who work in buildings that contain ACBM receive 2-hour asbestos awareness training within 60 days of initial employment and annually thereafter;
- b. Ensure that all custodians whose work may result in the disturbance of ACM receive 16-hour O&M asbestos training as described in P.7; and
- c. Ensure that the IHO is notified if ACM is significantly disturbed during custodial work, resulting in the generation of possible asbestos dust.

1.11 Asbestos Abatement/Removal Contractors shall:

- a. Comply with all Federal, state, NASA, and GSFC regulations concerning ACM;

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- b. Submit notifications to the EPA and appropriate State agency, MDE or VDOLI, as required in section 4 of this GPR;
- c. Submit asbestos abatement plans in accordance with section 4, including location and number of clearance samples, licenses of workers and supervisors, waste transporter license number, and a copy of Form 23-80 Asbestos Abatement Plan Submittal Form (Greenbelt) to the FMD Project Manager or COR for approval (at Greenbelt) or to the FAC (at WFF);
- d. Ensure that warning signs are posted 3 days prior to asbestos work at such a distance from the regulated area that persons may read the signs and take the necessary protective steps before entering the area marked by signs;
- e. Ensure that a competent and State licensed person supervises all asbestos work sites;
- f. Perform an initial exposure assessment and monitoring described in section 4.3 and 4.4, and additional requirements in section 5;
- g. Coordinate disposal of regulated ACM waste and other asbestos-containing waste at facilities accepting such waste, and provide a copy or proof of the disposal site permits; and
- h. Upon completion of an abatement project, submit a post-abatement report that includes ACM type, quantity abated, contractors involved, background and final clearance sample results, and asbestos waste shipment records to the FMD Project Manager or COR.

1.12 Asbestos Abatement Contractor's Competent Person shall:

Supervise and inspect all asbestos work performed within regulated areas in accordance with 29 CFR 1926.1101 (o).

1.13 Contracting Officers' Representatives (CORs) shall:

- a. Ensure that contractors engaged in Class I-IV asbestos work comply with all Federal, state, and local requirements;
- b. Ensure that asbestos abatement contractors are aware of GSFC requirements, provide contractors with a copy of the GSFC Asbestos Management Program, and ensure that contractors have access to asbestos O&M plans for the areas where they will perform their stated contractual duties;
- c. Ensure that only non-asbestos building materials are used by contractors; and
- d. Forward contract submittals, asbestos abatement plans, post abatement records, and other pertinent reports to the IHO at Greenbelt or to the FAC at WFF.

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1.14 Office of Human Capital Management shall:

- a. Maintain civil service employee asbestos training records per P.8, Records; and
- b. Ensure that civil service employees complete GSFC Form 17-26 or 17-26W, Exit Clearance Record, prior to termination of employment.

1.15 The Medical and Environmental Management Division (MEMD)

1.15.1 The MEMD, Environmental Management shall:

- a. Obtain from the FAC annual predictions of quantities of regulated ACM to be removed from each building or facility for the following calendar year, in accordance with 40 CFR 61.145, by December 1. Report any quantities greater than NESHAP thresholds to the MDE or Virginia Department of Labor and Industry (VDOLI) 10 days prior to the end of the year (e.g., nonscheduled renovation operations for which an exact date cannot be predicted but is expected to occur based on past experience);
- b. Ensure the safe disposal of regulated ACM waste that is not ACM waste, and generated as a result of operations at GSFC; and
- c. The Environmental Team at WFF shall, in addition, perform the following duties:
 - (1) Review proposed landfills and waste transporters prior to the start of asbestos abatement work.
 - (2) Approve the asbestos waste shipment record manifest before the waste is transported for disposal.

1.15.2 The MEMD, Health Unit at Greenbelt and WFF shall:

- a. Provide medical surveillance to GSFC civil service employees as required by OSHA (29 CFR 1910.1001(l)); and
- b. Maintain GSFC employees' medical surveillance records as required by 29 CFR 1910.1001(l).

1.16 Contractors and GSFC employees shall:

- a. Ensure that all materials brought onto GSFC are non-ACM unless approved by the AWG for a specific project;
- b. Comply with all applicable Federal, state, NASA, and GSFC requirements governing work with ACM; and
- c. Contact the IHO if damaged ACM or PACM is noted;

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1.17 Owners / Operators of Equipment with Asbestos-Containing Parts shall:

- a. Demonstrate knowledge of and follow work practices and controls for limiting exposure to asbestos during disassembly, repair, and assembly of equipment with asbestos-containing parts as specified in section P.7 Training and section 15, Operations Involving Other Non-Facilities Asbestos;
- b. Label asbestos-containing equipment and hardware in accordance with section 6. Notifications of ACBM and PACM; and
- c. Notify the Safety Division for disposal of ACM waste.

1.18 Vehicle Mechanics and Equipment Maintenance Personnel shall demonstrate knowledge of and follow work practices and controls for limiting exposure to asbestos during disassembly, repair, and assembly of asbestos-containing vehicle and equipment (e.g., cranes) parts as specified in section P.7 Training and section 14, Operations Involving Brakes and Clutches.

1.19 Organizations Other Than FMD / FMD Contractors that Coordinate and Fund Asbestos Abatement Projects shall perform all duties listed under section 1.10.5, FMD Project Managers and section 1.10.7, The Custodial Staff COR of this GPR.

2. EXPOSURE LIMITS

2.1 Full Work Shift Exposure Limit

Personnel shall not be exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter (f/cc) of air as an 8-hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of 29 CFR 1926.1101.

2.2 Excursion Limit

Personnel shall not be exposed to an airborne concentration of asbestos in excess of the excursion limit, 1.0 f/cc of air averaged over a sampling period of 30 minutes, as determined by the method prescribed in Appendix A of 29 CFR 1926.1101.

3. PROHIBITED ASBESTOS-RELATED WORK ACTIVITIES

The following equipment and work practices shall not be used in association with asbestos-related work, regardless of quantity, type, or operation:

- a. High-speed abrasive disc saws that are not equipped with a point-of-cut ventilator or enclosures with High Efficiency Particulate Air (HEPA) -filtered exhaust air;
- b. Compressed air, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air;

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- c. Dry sweeping, shoveling, or other dry cleanup of ACM or PACM;
- d. Employee rotation as a means to reduce employee exposure to asbestos; and
- e. Sanding, cutting, or abrading vinyl asbestos tiles (VAT), unless controlled with appropriate abatement procedures.

4. REQUIREMENTS FOR ASBESTOS PROJECTS

- a. Asbestos projects shall be performed in accordance with OSHA 29 CFR 1926.1101, EPA 40 CFR 61 & 763, this GPR, and the appropriate state regulation, COMAR 26.11.21 or 16 VAC 25-20-10 and 16 VAC 25-30-10.
- b. Personnel performing asbestos project work shall be considered to be performing Class I, II, or III work.
- c. The EPA and appropriate state agency, MDE or VDOLI, shall be notified in writing of the quantity of ACM to be abated or removed, and other elements listed in 40 CFR 61.145 NESHAP, 10 days prior to the start of a renovation or demolition project if the quantity of ACM to be abated or removed equals or exceeds 260 linear feet on pipes, 160 square feet on other facility components, or 35 cubic feet of facility components.
- d. If the removal amount is between 20 linear feet / 10 square feet and 259 linear feet / 159 square feet, the MDE shall be notified of the quantity of ACM to be abated or removed during an asbestos project at any time prior to the start of the project. VDOLI does not require reporting at this level for Federal facilities in Virginia.
- e. GSFC Form 23-80 Asbestos Abatement Plan Submittal Form (for projects at Greenbelt) shall be submitted with an Asbestos Abatement Plan containing the elements in UFGS-02 82 16.00 20; and Asbestos Worker, Supervisor, and Project Designer licenses, to the IHO (at Greenbelt) or to the DAC (at WFF) for approval at least 5 working days prior to commencing asbestos abatement.
- f. Engineering and work practice controls in accordance with 29 CFR 1926.1101 (g) shall be implemented for Class I – IV asbestos work. These include, but are not limited to, using vacuum cleaners and ventilation equipped with HEPA filters; keeping regulated ACM adequately wet before, during, and after removal; erecting enclosures and containment.
- g. For all Class I-II asbestos abatement, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent.
- h. For all Class I-II asbestos abatement, impermeable drop cloths shall be placed on surfaces beneath all removal activity.

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- i. For all Class I-II asbestos abatement, all objects within the regulated area shall be covered with impermeable drop cloths or plastic sheeting which is secured by duct tape or an equivalent.
- j. Regulated ACM and Category II materials that have a high probability of being crumbled, pulverized or reduced to powder as part of demolition shall be removed before demolition begins.
- k. Category I materials which are not friable prior to demolition and Category II materials which have a low probability of becoming crumbled, pulverized, or reduced to powder during demolition are not required to be removed, except where demolition will be by intentional burning.

4.1 Regulated Areas

- a. Class I, II and III asbestos work, and all other operations where airborne concentrations of asbestos exceed the exposure limit, or there is a reasonable possibility they may exceed the exposure limit, shall be conducted within regulated areas.
- b. Only authorized and trained personnel wearing the required PPE may access regulated areas.
- c. Critical barriers shall be used for all Class I-II jobs involving the removal of more than 25 linear or 10 square feet of TSI or surfacing material; and for all other Class I jobs, where the employer cannot produce a negative exposure assessment or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed.
- d. For all Class I-II jobs where the asbestos abatement contractor cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the contractor shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.
- e. Negative pressure enclosures shall be used where feasible with a minimum of 4 air changes per hour and -0.02" water gauge (wg) pressure differential relative to the outside.
- f. Glove bag systems or negative pressure glove bag systems consisting of 6 mil thick plastic may be used to remove ACM or PACM from piping and elbows within specifications outlined in 29 CFR 1926.1101 (g).
- g. A mini-enclosure of 6 mil thick plastic and negative pressure which accommodates no more than two persons may be used if the disturbance or removal can be completely contained by the enclosure.
- h. For removing asbestos-containing floor tile and floor tile in buildings constructed prior to 1981 for which the absence of ACM has not been verified pursuant to 29 CFR 1926.1101 (g)(8)(i)(I), personnel shall comply with work practices in 29 CFR 1926.1101 (g) (8) and receive training in these practices pursuant to 29 CFR 1926.1101 (k)(9).

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- i. Class III asbestos work shall be conducted using engineering and work practice controls specified in 29 CFR 1926.1101 (g).
- j. Class IV asbestos work shall be conducted using wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.
- k. Respiratory protection and a respiratory protection program shall be required in accordance with 29 CFR 1926.1101 (h).
- l. Protective clothing shall be worn, laundered, and disposed of in accordance with 29 CFR 1926.1101 (i).
- m. Eating, drinking, using tobacco, chewing gum, and applying cosmetics shall not be allowed in regulated areas.
- n. Work performed within regulated areas shall be supervised by a competent person.

4.2 Demarcations and Signage

- a. Notification warning signs shall be posted to demarcate the regulated area.
- b. Notification warning signs shall be posted at the perimeter of the asbestos project regulated area (and other work area where there is a reasonable possibility of exposure above the exposure limit).
- c. Notification warning signs shall include the following information:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

- d. Where the use of respirators and protective clothing is required in the regulated area, the warning signs shall include the following:

RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN THIS AREA

- e. Critical barriers or negative pressure enclosures serving to demarcate regulated areas shall be erected in accordance with 29 CFR 1926.1101.
- f. Project Notification signs and Asbestos Project Contact Information signs shall be posted immediately outside all entrances to and exits from the work site to notify the building occupants of

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an asbestos abatement project at least 3 days prior to commencement of the project, and until completion of the project.

- g. Project Notification signs shall include dates and hours of abatement, building material to be abated, potential concerns, and points of contact in accordance with the requirements of Code of Maryland Regulation (COMAR) 26.11.21.06.
- h. Asbestos Project Contact Information Signs shall include the following information:

CODE OF MARYLAND REGULATION (COMAR)
26.11.21.06 REQUIRES THAT ASBESTOS ABATEMENT
SIGNS BE POSTED
THERE IS NO CAUSE FOR CONCERN
FOR ADDITIONAL INFORMATION PLEASE CONTACT
Code 220 RANDY DEMBROWICZ 286-8343
Code 360 TRACY AVANT 286-2888
Code 360 SYLVIA GRIMES 286-0940

4.3 Exposure Monitoring and Assessment

- a. An initial exposure assessment with determinations based on representative 8-hour and 30-minute air monitoring results shall be conducted for personnel involved in asbestos work during renovation, construction, operations, and maintenance activities in accordance with 29 CFR 1926.1101 and 29 CFR 1910.1001.
- b. An exposure assessment shall be performed by a “competent person” immediately before or at the initiation of the operation to ascertain expected exposures during that operation.
- c. Personnel performing Class I asbestos work shall be presumed to be exposed to asbestos above the permissible exposure limit unless the initial exposure assessment indicates otherwise.
- d. The initial exposure assessment shall be accomplished through exposure monitoring or a negative exposure assessment as outlined in 29 CFR 1926.1101.
- e. Daily monitoring that is representative of the exposure of personnel who are assigned to perform Class I or II work shall be conducted, unless a negative exposure assessment has been made.
- f. Periodic monitoring shall be conducted for personnel engaged in operations other than Class I and II asbestos work where the permissible exposure limit is expected to be exceeded, at intervals sufficient to document the validity of the exposure prediction.
- g. Personnel who wear supplied-air respirators and follow the control methods outlined in 29 CFR 1926.1101 are not required to be subject to daily monitoring.

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- h. Periodic monitoring may be discontinued if the monitoring results indicate that personnel are exposed below the permissible exposure limit and excursion limit.
- i. Exposure monitoring shall be performed whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit.
- j. Personnel shall be notified of the results of monitoring in writing or by posting the results within five days of receipt of results.

4.4 Clearance Air Monitoring

- a. Asbestos abatement containments and critical barriers shall not be removed until area air sample results demonstrate that airborne levels of asbestos in the contained area are below clearance levels.
- b. Air monitoring shall be conducted inside and outside the asbestos abatement containment area following an asbestos abatement project subject to NESHAP to demonstrate that airborne asbestos concentrations are below the clearance level of 0.01 f/cc as an 8-hour TWA, in accordance with COMAR 26.11.21.06 or 16 VAC 25-30-10.
- c. In the event that concentrations are greater than clearance levels, cleaning (wet mopping, wiping, and vacuuming with HEPA filter) and ventilation shall be repeated until concentrations are below the clearance level.
- d. Transmission electron microscopy (TEM) shall be used to analyze clearance air monitoring samples for Class I asbestos work projects.
- e. For clearance air monitoring of asbestos work projects other than Class I projects, analysis shall be performed by either TEM or phase contract microscopy (PCM).
- f. When clearance monitoring is done by TEM instead of PCM, the protocol outlined in the 40 CFR 763 shall apply.
- g. All monitoring results shall be posted daily in a logbook, designated location, or outside the entrance of the building where the asbestos project is being performed.
- h. Laboratories shall meet the requirements by the National Bureau of Standards to conduct TEM, or be enrolled in the AIHA Proficiency Analytical Testing Program for PCM.
- i. If TEM or PCM analysis is conducted on-site, the analyst shall be trained in accordance with National Institute for Occupational Safety and Health (NIOSH) 582, Asbestos Fiber Counting.

4.5 Response Action

- a. If there is a major or minor fiber release, or if airborne concentrations of asbestos equal or exceed 0.01 f/cc by PCM or 70 structures per mm² by TEM, occupants from areas adjacent to the containment shall be notified and removed from the area until the concentration is reduced to acceptable levels as defined by 40 CFR 763.
- b. The CAC and the FMD Project Manager / COR at Greenbelt, or the IH and FAC at Wallops, shall be notified in the event of a fiber release or if airborne asbestos concentrations exceed 0.01 f/cc by PCM or 70 structures/ mm² by TEM and be responsible for a response action.
- c. The FOM, DAC and FMD O&M section at Greenbelt, or the IH and FAC at WFF, shall be notified in the event of a fiber release or if airborne asbestos concentrations exceed 0.01 f/cc by PCM or 70 structures/ mm² by TEM to coordinate shutting off air handling units to the area.
- d. Response actions shall be performed in accordance with 40 CFR 763.90, and information recorded including, but not limited to, description of the action taken, location, methods, start and complete dates of asbestos project work, contractor company names and accreditation numbers, name and location of ACM waste storage or disposal site, names of persons collecting air samples at the completion of response actions, the location where samples were collected, date of collection, name of laboratory analyzing the samples, date of analysis, results of analysis, method of analysis, name and signature of person performing the analysis, and statement that the laboratory is accredited by the AIHA Proficiency Analytical Testing Program or NVLAP.

5. ADDITIONAL REQUIREMENTS FOR ASBESTOS ABATEMENT PROJECTS OCCURRING IN OCCUPIED AREAS

- a. Area air monitoring shall be conducted no more than 20 feet outside of the perimeter of the regulated area to demonstrate negative exposure to personnel.
- b. Asbestos project containment, critical barriers, etc., in occupied buildings shall not be removed before final clearance results have been reviewed and accepted by the IHO.
- c. Where solvents are used for mastic removal in occupied buildings, the work area shall be ventilated to the outside for the duration of the project, and at least 24 hours after completion of the project, through means that prevent reentry of exhaust air into the building, and with the containment area remaining at negative pressure with respect to other occupied spaces.
- d. Reasonable actions shall be taken to ensure that non-abatement personnel are not unduly exposed to elevated levels of fibrous dust, solvent vapors, or other abatement-related substance.

6. WARNING SIGNS AND LABELS FOR ACBM AND PACM

- a. Building FOMs, DAC shall be notified of ACBM and PACM in buildings following a building survey or O&M plan follow-up assessment.

CHECK THE GSFC DIRECTIVES MANAGEMENT SYSTEM AT
<http://gdms.gsfc.nasa.gov> TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

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- b. Warning labels shall be affixed to each homogenous area of friable ACBM or PACM located in areas accessible to employees and contractors, e.g., intact TSI, fireproofing, and surfacing material in mechanical rooms or above ceilings, in intervals of approximately 20 feet or as necessary. . Floor tile, ceiling tile, fire doors, wallboard, bonded materials, or other non-friable ACM in their intact state will not require signs or labels.
- c. Warning signs and asbestos contact information signs shall be posted at the entrance to mechanical rooms that contain ACM or PACM.
- d. Warning labels shall be posted on equipment and flight hardware as long as the labels do not impair functionality. .
- e. If warning labels impair the function of the equipment and hardware, a record that the equipment or hardware contains asbestos shall be kept by the owner, so that at the time of service or disposal proper precautions may be taken.
- f. Warning signs shall bear the following information:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

- g. Asbestos Contact information signs shall bear the following information:

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATION 29 CFR
1910.1001 REQUIRES THAT ASBESTOS SIGNS BE POSTED ON DOORS OF MECHANICAL
ROOMS CONTAINING ASBESTOS MATERIALS
THERE IS NO CAUSE FOR CONCERN

FOR ADDITIONAL INFORMATION PLEASE CONTACT

Code 200 Directorate Asbestos Coordinator	286-_____
Code 360 Center Asbestos Coordinator	286-_____
Code 360 Asbestos Program Manager	286-_____
Code 360 Industrial Hygiene Office	286-6669

- h. Warning labels shall bear the following information:

DANGER
Materials in this mechanical room may contain asbestos.
Prior to any work that may impact these materials,
contact the Industrial Hygiene Office at xxxx.

Or

CHECK THE GSFC DIRECTIVES MANAGEMENT SYSTEM AT
<http://gdms.gsfc.nasa.gov> TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

7. STORAGE, TRANSPORTATION, AND DISPOSAL OF WASTE

- a. Material waste containing greater than 1% asbestos shall be regarded as ACM waste.
- b. ACM waste shall be stored, transported, and disposed of in accordance with Federal, state, local, and disposal site regulations and permits, in addition to the requirements in this GPR.
- c. Category I or II nonfriable ACM waste that is not regulated ACM waste shall be disposed of at a landfill that is permitted to accept it and operates in accordance with EPA 40 CFR 61.154.
- d. Regulated ACM waste and disposable equipment, clothing, and non-regulated ACM contaminated with asbestos shall be:
 - (1) kept adequately wet;
 - (2) disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers; and
 - (3) disposed of as regulated waste in a landfill that operates in accordance with EPA 40 CFR 61.150 and 61.154.
- e. Regulated ACM waste shall be stored, transported, and disposed of in containers with labels stating 'Asbestos-Containing Waste' with the name of the waste generator and the location where the waste was generated.
- f. Waste shipment records, proof of landfill permits, and waste transporter licenses shall be obtained to document proper disposal and be available for review.
- g. A waste shipment record shall be provided by the asbestos abatement contractor or transporter to the disposal site operator at the time that the waste is delivered to the disposal site.
- h. The signed waste shipment record shall be collected by the general asbestos abatement contractor or transporter and provided to the FMD Project Manager within 35 days of the date that the waste was accepted by the initial transporter.

8. OPERATIONS AND MAINTENANCE (O&M) ACTIVITIES

- a. An O&M plan as part of the overall asbestos management plan (e.g., as a configuration management system directive, PG, or WI) shall be developed to define procedures for the management of ACM to minimize potential exposure to asbestos.

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- b. An O&M plan shall include the elements in 40 CFR 763.91 (d) – (f), in addition to the following:
 - (1) Reference to the facilities management information system (e.g., ARCHIBUS®, GIS), which indicates the locations of ACM;
 - (2) A system to notify building occupants where ACM is located and how and why to avoid disturbing ACM;
 - (3) Surveillance procedures to assess and document any changes in the condition of ACM;
 - (4) Procedures for training O&M and custodial staff;
 - (5) Procedures for accidental release of asbestos;
 - (6) Procedures for specific maintenance operations; and
 - (7) Procedures for keeping records that pertain to asbestos activities.
- c. The O&M plan shall include work practices to:
 - (1) Monitor the condition of ACM periodically;
 - (2) Ensure ACM is maintained in good condition;
 - (2) Handle situations in which ACM has become damaged or cleanup of ACM is necessary; and
 - (3) Prevent further release of asbestos fibers through encapsulation or other abatement method.

9. PERIODIC REASSESSMENT OF ACBM AND PACM

The condition of ACBM and PACM identified in initial building surveys shall be surveyed at least every 3 years to determine if changes have occurred to warrant reclassification of the risk assessment.

10. BULK SAMPLING

- a. Bulk samples of potentially ACM shall be collected in the manner described in 40 CFR 763.86.
- b. Sample collection and evaluation shall be conducted by a certified Building Inspector as described in P.9, or by a certified industrial hygienist (CIH).
- c. Analysis of samples shall be performed by persons or laboratories accredited by AIHA, NVLAP, or equivalent nationally recognized testing program.

11. HOUSEKEEPING AND HYGIENE

- a. Hygiene facilities and work practices shall be implemented in accordance with 29 CFR 1926.1101 (j).
- b. All asbestos-containing vinyl and asphalt flooring material shall be maintained in accordance with 29 CFR 1926.1101 (l):
 - (1) Sanding is prohibited,
 - (2) Stripping must include low abrasion pads at speeds lower than 300 rpm and wet methods,
 - (3) Dry buffing is limited to ACM floor tiles with sufficient finish to protect ACM.

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- c. Debris and dust from deteriorated ACM shall be cleaned up by personnel trained as described in section P.8.
- d. Where vacuuming methods are selected, HEPA filtered vacuuming equipment shall be used.
- e. Asbestos waste from roofing operations shall be handled as specified in 29 CFR 1910.1926.1101 (g)(8)(ii).

12. NOTIFICATION IN CONTRACTS

- a. Bidding contractors whose work may impact ACBM or PACM shall be provided with a written Asbestos Notification Summary prior to submission of their bid.
- b. Information about the location, type, and condition of ACM or PACM, if known, shall be included in contract specifications.

13. FACILITIES MANAGEMENT INFORMATION SYSTEM FOR ACBM AND PACM

- a. A computer-aided facilities management system (e.g., ARCHIBUS®, GIS) shall be maintained to provide up-to-date information about ACBM and PACM in GSFC buildings.
- b. The system should include information about the location and type of ACBM and PACM, homogeneous area, condition, and risk to personnel.
- c. Updates shall be made to the system within 30 days following an asbestos project.
- d. Project Managers, FOMs, DACs and building occupants may contact the FAC to request information contained in the system, or the IHO to request information contained in historical building survey records.

14. OPERATIONS INVOLVING BRAKES & CLUTCHES

- a. The use of asbestos-containing brake pads and clutches shall be minimized at GSFC.
- b. Maintenance of asbestos-containing brakes and clutches shall be conducted in accordance with the work practices and engineering controls required in 29 CFR 1910.1001, Appendix F.

15. OPERATIONS INVOLVING OTHER NON-FACILITIES ASBESTOS

- a. Activities involving non-facilities related ACM will be evaluated on a case-by-case basis to determine appropriate work practices and controls.
- b. Disposal of non-facilities ACM shall be coordinated by the MEMD, Environmental.

16. MEDICAL SURVEILLANCE

- a. Civil service employees exposed to asbestos during past employment prior to GSFC will be given the opportunity for evaluation during routine physicals.
- b. A medical surveillance program in accordance with 29 CFR 1926.1101 (m) shall be instituted for any personnel who for a combined total of 30 or more days per year are engaged in Class I, II and III work, or are exposed at or above a PEL, except those engaged in Class II or III work who are exposed for 1 hour or less and use the appropriate work practices.

17. SPECIAL PROVISIONS FOR VINYL ASBESTOS TILE (VAT)

Guidance provided in OSHA's CPL 02-02-063, which includes the settlement agreement between OSHA and the Resilient Floor Coverings Institute, shall be used when removing, replacing, or renovating VAT:

- a. Procedures for conducting Class II asbestos work, an asbestos abatement plan, and other requirements for an asbestos project shall take effect if it is likely that VAT will not remain intact and will become friable during the course of VAT removal.
- b. VAT abatement projects may be conducted using critical barriers and a poly splash guard 3 feet up from the floor, instead of full containment.
- c. A negative exposure assessment for VAT abatement projects may be based on historic data under CPL 02-02-063 Flooring Operations, if the specific "Compliant Work Practices" below are followed:
 - (1) Compliant work practices for removing sheet vinyl floor covering include the following:
 - (a) Before the removal begins, vacuum the entire floor with a HEPA vacuum using a metal floor attachment.
 - (b) Slice the material into approximately 4 to 8 inch wide strips with a sharp edge instrument, such as a utility knife.
 - (c) Roll up strips tightly from end to end.
 - (d) Constantly mist strips at the point where the material separates from the backing with amended water as each strip is rolled up.
 - (e) After each strip is removed, place it in a heavy duty impermeable trash bag or other closed leak-tight container.
 - (f) After three strips of flooring material are removed, thoroughly wet any residual felt and remove with stiff-bladed scraper. Place the felt scrapings, while still wet into an impermeable trash bag or other closed leak-tight container.
 - (g) Vacuum the areas from which the flooring has been removed using a HEPA vacuum with metal floor attachment as the removal progresses.
 - (h) After the entire floor has been removed and has dried, vacuum the floor using a HEPA vacuum with a metal floor attachment.

- (2) Compliant work practices for removing floors tile and associated mastic include the following:
 - (a) Before removal begins, vacuum the entire floor using a HEPA vacuum with a metal floor attachment.
 - (b) Pry up each floor tile individually using a stiff blade scraper. If a tile does not release from the adhesive when the scraper is forced under the tile by hand, the scraper may be struck with a hammer to cause the tile to release and/or the tile is heated (e.g. using a hot air gun) to soften the adhesive and facilitate removal.
 - (c) Alternatively, without first prying up floor tiles using a scraper, apply heat to the floor tile from a heat source (e.g. infrared heat machine) and remove the tile by hand or by using a scraper.
 - (d) After the tile is removed, place it in a heavy duty impermeable trash bag or other closed leak-tight container without further breakage.
 - (e) As small areas of floor are cleared of tile, remove residual adhesive, to the extent necessary to prepare the surface for installation of new flooring material, by wetting and scraping (by hand) using a stiff blade floor scraper. **(The use of a mechanical buffer with abrasive pads to remove mastic is not allowed).**
 - (f) Place adhesive residue while still wet in a heavy duty impermeable trash bag or other closed leak-tight container.
 - (g) Vacuum the area from which the adhesive has been removed using a HEPA vacuum with a metal floor attachment.
 - (h) After the entire floor has been removed and has dried, vacuum using a HEPA vacuum with metal floor attachment.
 - (i) Wetting the floor tile prior to removal is required if heating is not used to remove floor tile.
 - (3) Flooring material is removed in an intact or substantially intact state;
 - (4) Workers engaged in the removal have received an 8-hour training course for the removal of intact flooring materials;
 - (5) Competent Person engaged in the removal have received an 12-hour training course for overseeing the removal of intact flooring material and
 - (6) Before the removal begins, a competent person determines that the flooring is intact and is likely to remain intact during the removal process.
- d. If the floor tile mastic contains asbestos, and the floor tile itself does not contain asbestos, both shall be treated as asbestos-containing for waste purposes since the mastic sticks to the tiles.
 - e. VAT waste shall be treated as regulated ACM waste if it resulted from an asbestos project, if it has become friable, or if it is not intact.
 - f. Intact and nonfriable VAT waste, which did not result from an asbestos project, may be disposed of as unregulated ACM waste at a landfill having a permit to accept such waste.

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Appendix A – Definitions

- A.1 Abatement** – The encapsulation, repair, removal, or enclosure of ACM;
- A.2 Amended Water** – Water with mild soap added and used to wet ACM;
- A.3 Asbestos** – Asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite minerals;
- A.4 Asbestos Project** – Any activity involving the demolition, renovation, or encapsulation of friable asbestos materials;
- A.5 Asbestos-Containing Material (ACM)** – Any material containing more than 1% asbestos as determined by the approved EPA Method;
- A.6 Asbestos-Containing Building Material (ACBM)** – Any building materials, including thermal system insulation (TSI), surfacing or miscellaneous materials, that are found in or on the interior structural materials or other parts of a building;
- A.7 Asbestos Working Group (AWG)** – A group composed of GSFC personnel, primarily from the IH Function and FMD, who meet regularly to communicate regarding activities that may impact ACM and ACBM and methods to properly manage them;
- A.8 Category I Nonfriable ACM** – Asbestos-containing packings, gaskets, resilient floor coverings (floor tile), mastic, and asphalt roofing products containing more than 1% asbestos as determined using polarized light microscopy, specified in 40 CFR part 763, Appendix E to Subpart E;
- A.9 Category II Nonfriable ACM** – material, excluding Category I nonfriable ACM, containing more than 1% asbestos as determined by polarized light microscopy, specified in 40 CFR part 763, Appendix E to Subpart E, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (e.g., Transite™, cement products, stucco);
- A.10 Certified Industrial Hygienist (CIH)** – An individual certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene;
- A.11 Class I Asbestos Work** – Activities involving the removal of thermal systems insulation (TSI) and surfacing ACM and PACM;
- A.12 Class II Asbestos Work** – Activities involving the removal of ACM which is not thermal system insulation or surfacing material. These activities include, but are not limited to, removing asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics;
- A.13 Class III Asbestos Work** – Repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, are likely to be disturbed;
- A.14 Class IV Asbestos Work** – Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM, and activities to clean up dust, waste and debris resulting from Class I, II, and III activities;
- A.15 Competent Person** – As defined in 29 CFR 1926.1101; a person who (1) is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate strategy for controlling asbestos exposure and (2) has the authority to take prompt corrective measures to eliminate them. For Class I and Class II work, a competent person shall have been specially trained in a course that meets the criteria of the Asbestos Hazard Emergency Response Act (AHERA) Asbestos Supervisor training for the state in which the facility is located;
- A.16 Demolition** – The wrecking or removing of any load-supporting structural member of a facility, together with any related handling operations, or intentional burning of any facility;

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- A.17 Disturbance** – Activity that disrupts the matrix of ACM or PACM, crumbles or pulverizes ACM or PACM, or generates visible debris from ACM or PACM;
- A.18 Employee** – individuals employed by NASA as civil servants;
- A.19 Enclosure** – An airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air;
- A.20 EPA’s Model Accreditation Plan (MAP) (40 CFR 763)** – EPA’s requirements for training of workers, supervisors, inspectors involved in activities involved in ACM;
- A.21 Facility** – Any structure, building, or installation;
- A.22 Fiber Release Episode** – Any uncontrolled or unintentional disturbance of ACBM resulting in visible emission;
- A.23 Friable ACM** – Any material containing more than 1% asbestos, which when dry can be crumbled, pulverized, or reduced to powder by hand pressure;
- A.24 Intact ACM** – ACM that has not been crumbled, pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix;
- A.25 Minor Fiber Release Episode** – The falling or dislodging of 3 square ft, 3 linear ft, or less, of friable ACM or PACM;
- A.26 Major Fiber Release Episode** – The falling or dislodging of more than 3 square ft, 3 linear ft, or more, of friable ACM or PACM;
- A.27 National Emission Standard for Hazardous Air Pollutants (NESHAP) project** – Asbestos project subject to requirements under 40 CFR 61.145 NESHAP, if the quantity of asbestos to be removed equals or exceeds 260 linear feet on pipes, 160 square feet on other facility components, or 35 cubic feet of facility components;
- A.28 Occupied Area** – An area in which personnel not involved in asbestos abatement are working adjacent to asbestos abatement activities (i.e., mechanical rooms are normally not considered occupied, since laboratories and offices are normally not located in mechanical rooms);
- A.29 Occupied Building** – A building in which personnel not involved in asbestos abatement perform their normal activities while asbestos abatement takes place (buildings occupied during the day will still be considered occupied if the asbestos abatement occurs after hours or on weekends);
- A.30 Operations and Maintenance (O&M) Plan** – Plan outlining procedures to maintain friable ACBM in good condition, ensure clean-up of asbestos fibers released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage. It includes procedures to periodically assess the condition of ACBM and actions to take in the event ACBM has been damaged, in order to minimize potential exposure of building occupants and maintenance personnel to airborne asbestos fibers;
- A.31 Personnel** – All individuals working at GSFC, including civil servants and those employed by contractors, tenant organizations, grantees, clubs, and other organizations operating under the auspices of GSFC or on GSFC property;
- A.32 Presumed Asbestos Containing Material (PACM)** – Thermal systems insulation, surfacing material, and vinyl floor tile found in buildings constructed prior to 1980 that must be treated as ACM, until proven otherwise;
- A.33 Regulated Area** – An area where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulates; and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the permissible exposure limit;

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- A.34 Regulated ACM** – a) Friable asbestos material, b) Category I nonfriable ACM that has become friable, c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material during the course of demolition or renovation operations;
- A.35 Response Action** – A method such as removal, encapsulation, enclosure, repair, operation and maintenance that protects human health and the environment from friable ACM; and
- A.36 Thermal Systems Insulation (TSI)** – Materials in a building that are applied to pipes, fitting, boiler, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation or for other purposes.

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Appendix B – Acronyms

ACBM	Asbestos-Containing Building Material
ACM	Asbestos-Containing Material
AHERA	Asbestos Hazard Emergency Response Act
AIHA	American Industrial Hygiene Association
ASHARA	Asbestos School Hazard Abatement Reauthorization Act
AWG	Asbestos Working Group
CAC	Center Asbestos Coordinator
CIH	Certified Industrial Hygienist
COMAR	Code of Maryland Regulations
COR	Contracting Officer's Representative
CPL	OSHA Enforcement and Compliance Directive
DAC	Directorate Asbestos Coordinator
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAC	Facilities Asbestos Coordinator
F/CC	Fiber per Cubic Centimeter
FMB	Facilities Management Branch at Wallops
FMD	Facilities Management Division
FOM	Facility Operations Manager
GPR	Goddard Procedural Requirements
GSFC	Goddard Space Flight Center
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation, and Air-Conditioning
IH	Industrial Hygiene or Industrial Hygienist
IHO	Industrial Hygiene Office
MAP	Model Accreditation Plan
MDE	Maryland Department of the Environment
MEMD	Medical and Environmental Management Division
MOD	Management Operations Directorate
NASA	National Aeronautics and Space Administration
NAVFAC	Naval Facilities Engineering Command
NESHAP	National Emission Standard for Hazardous Air Pollutants
NIOSH	National Institute for Occupational Safety and Health
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NIST	National Institute of Standards and Technology
NRRS	NASA Records Retention Schedule
NVLAP	National Voluntary Laboratory Accreditation Program
O&M	Operations and Maintenance
OS&H	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PACM	Presumed Asbestos-Containing Material

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PCM	Phase Contrast Microscopy
PG	Procedures and Guidelines
PLM	Polarized Light Microscopy
PPE	Personal Protective Equipment
S&E	Safety and Environmental Division
TEM	Transmission Electron Microscopy
TSI	Thermal Systems Insulation
TWA	Time-Weighted Average
UFGS	United Facilities Guide Specifications
VAC	Commonwealth of Virginia Administrative Code
VAT	Vinyl Asbestos Tile
VDOLI	Virginia Department of Labor and Industry
WFF	Wallops Flight Facility
WG	Water Gauge
WI	Work Instruction

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	6/21/2005	Initial Release
A	03/20/2010	Administratively Revised to update the Responsible Office Code, Organization Title and organization name within the document. Administratively extended for 1 year from original expiration date.
B	10/21/2010	Substantive changes made throughout document to reconcile requirements and responsibilities. Added references and organized existing with correct names. Added training requirements to cover all EPA and OSHA training scenarios. Changed organization name and delineated responsibilities by function within the OS&H Division (formerly part of S&E Division)
B	10/14/2015	Administratively Changed to update the Responsible Office Code and name throughout the document. Administratively extended for 1 year from original expiration date.
B	10/07/2016	Administratively Change and Extend for 1 year and update GPR template.
C	08/24/2017	Training requirements clarified to include Project Managers. Maryland Department of Environment Licensing requirement added. Late asbestos wasted Environment Protection Agency notification requirements added. Annual prediction of quantities of asbestos to be removed and NESHA thresholds reporting requirements added. Asbestos warning signs content changed to reflect regulatory requirements. VAT "Compliant Work Practices" clarified. Added requirement for Asbestos Contact information signs on mechanical room doors.